PROPOSED PLAN for Amendment to Record of Decision

Operable Unit 1, Area 6

Naval Air Station Whidbey Island
Oak Harbor, Washington **November 2018**

INTRODUCTION

The United States Navy (Navy) is proposing to amend its 1993 Record of Decision (ROD) for the Naval Air Station (NAS) Whidbey Island Superfund Site (Site) by addressing impacts to groundwater in and around the Area 6 Landfill (Figure 1). Specifically, the Navy proposes that the 1993 ROD for Operable Unit (OU) 1 EPA/ROD/R10-94/075, which includes Area 6, groundwater treatment remedy be amended to address 1,4-dioxane in groundwater since 1,4-dioxane was not identified and not accounted for in the 1993 ROD and is not treated by the current groundwater treatment system. The Area 6 cleanup actions described in the 1993 ROD addressed on-site groundwater contamination and source areas associated with the Former Industrial Waste Disposal Area and the Navy Municipal Landfill. The current air stripper groundwater treatment system began operation in 1995 to address chlorinated volatile organic compounds (VOCs) and continues to operate as intended. At the time the 1993 ROD was signed, the cleanup actions described in that ROD addressed all known current and potential risks to human health and the environment.

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Figure 1 - NAS Whidbey Location map

In 2003, the United States Environmental Protection Agency (EPA) requested the Navy evaluate the groundwater for 1,4-dioxane as the EPA had identified 1,4-dioxane at non-Navy sites that had solvent contamination present, and the Navy identified 1,4-dioxane in groundwater at Area 6 in 2003. The identification of 1,4-dioxane in groundwater at Area 6 has resulted in reevaluation of the groundwater remedy specified in the 1993 ROD. This Proposed Plan provides information on the preferred remedial action alternative for addressing 1,4-dioxane and chlorinated VOCs in groundwater; describes the other remedial alternatives considered by the Navy; and, explains the basis for the preferred alternative. Additionally, as part of the ROD amendment process, the Navy plans to eliminate

The public comment period begins on November 21, 2018, and ends on December 21, 2018. The Navy invites you to attend a public Open House to discuss the Proposed Plan on December 5, 2018 from 5:30 to 7:30 p.m. at the NASWI Chief Petty Officers' Club Ballroom in Oak Harbor, Washington. Additional details on Page 16.

1,1-Dichloroethane (1,1-DCA) and cis-1,2-Dichloroethene (cis-1,2-DCE) as contaminants of concern (COCs) for OU 1, Area 6, as groundwater concentrations for these hazardous substances have been below the remediation goals (RGs) in the 1993 ROD since at least 2008. Also, as part of the ROD amendment process, the Navy plans to propose new RGs for 1,4-dioxane, vinyl chloride, and 1,1-Dichloroethene (1,1-DCE).

The Navy is the lead agency for all investigation and cleanup programs at the Site, with input from the EPA as the regulatory agency. The Navy is required to publish this Proposed Plan as part of the public participation requirements under Section 300.435(c) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. §300.435(c), and Section 117 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §9617, commonly referred to as "Superfund." These federal laws and regulations address the cleanup of contaminated sites that contain hazardous substances. The purpose of this Proposed Plan is to identify the Preferred Alternative for Area 6, describe other alternatives considered by the Navy, solicit public comment on all of the options including the Preferred Alternative, and to provide information on how the public can be involved in the remedy selection process. The public comment period on this Proposed Plan will be open for thirty days (November 21, 2018 until December 21, 2018) (see page 16 for additional information). The Navy will consider all comments received in the process of finalizing an amendment to the 1993 ROD (ROD Amendment). A Responsiveness Summary will be included in the ROD Amendment, discussing the public comments received and how they were addressed by the Navy.

The Proposed Plan gives basic information that can be found in more detail in the Focused Feasibility Study (FFS) for Area 6 dated July 20, 2018, and other documents posted online at https://navfac.navy.mil/NASWIRAB. The FFS report presents an evaluation of potential cleanup alternatives capable of addressing 1,4-dioxane and VOCs in groundwater while achieving remediation goals. The FFS and other documents in the Administrative Record were prepared to support the upcoming ROD Amendment. If requested by the public, additional historical documents will be posted online. Additional information regarding the location of the Administrative Record can be found on Page 16.

SITE BACKGROUND

In 1969, the Navy purchased a plot of land on Whidbey Island north of Oak Harbor, and established a landfill on this property for disposal of waste products from operations at NAS Whidbey Island. Today, this property is known as Area 6. Within Area 6 are two areas, the Former Industrial Waste Disposal Area and the Navy Municipal Landfill, where wastes are known to have been disposed of (Figure 2). Liquid wastes such as solvents, oils, and thinners were disposed of at the Former Industrial Waste Disposal area. A separate portion of Area 6 was used for Navy household municipal waste from 1969 to 1992. Area 6 was designated as part of the National Priority List (NPL) Ault Field CERCLA Site in 1990, because some of the aircraft-related industrial waste products had migrated from the landfill and chlorinated VOCs were discovered in groundwater around the landfill.

As a result of the NPL listing, the Navy conducted a Remedial Investigation/Feasibility Study (RI/FS) to determine the nature and extent of soil and groundwater contamination and to evaluate alternatives for the cleanup of contaminated areas.

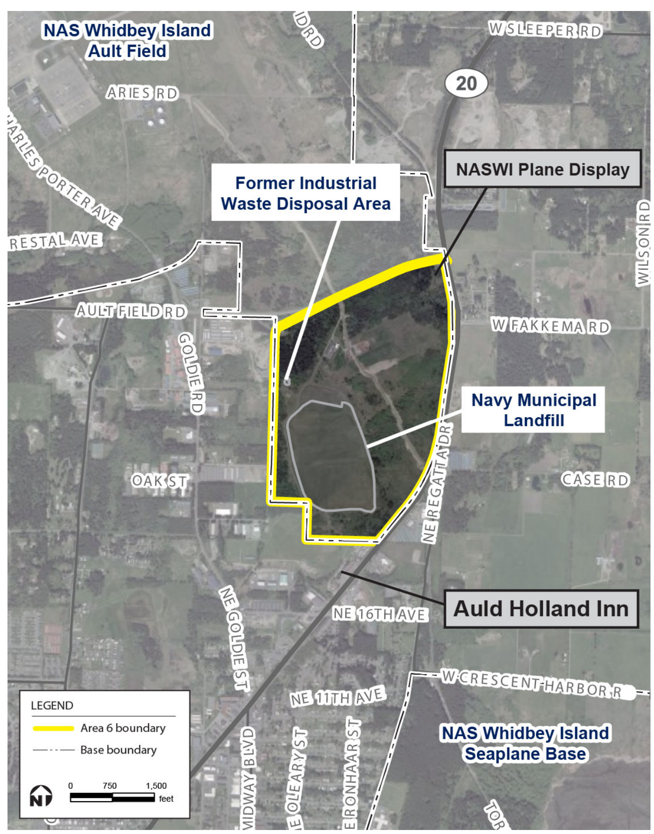

Figure 2 - NAS Whidbey Island and Area 6 Location Map

Based on the RI/FS, the following chlorinated VOCs were listed as groundwater COCs at the Site in the 1993 ROD:

- Trichloroethene (TCE)
- 1,1,1-Trichloroethane (1,1,1-TCA)
- 1,1-Dichloroethane (1,1-DCA)
- 1,1-Dichloroethene (1,1-DCE)
- cis-1,2-Dichloroethene (cis-1,2-DCE)
- Vinyl chloride

The 1993 ROD required the following cleanup activities:

- Capping the landfill operations area trenches with a minimum functional standards cap
- Assessing the interim action extraction system to ensure that it achieves aquifer cleanup levels and specifically to determine the need for additional source area extraction wells
- Extracting groundwater from the shallow aquifer at the western boundary of the landfill, treating chlorinated COCs by air stripping, and returning the treated groundwater to the shallow aquifer at on-site location. The system prevents these chlorinated COCs from flowing away from the landfill by pumping groundwater back to a treatment plant and removing the COCs from extracted water via an air stripper.
- Monitoring groundwater in the shallow, intermediate, and deep aquifers to assess the effectiveness of the groundwater treatment system. Ongoing monitoring activities have also included sampling offsite private wells and adding offsite monitoring wells to evaluate the migration of COCs, particularly in the direction that groundwater flows, away from the landfill to the south and the west.
- Monitoring private drinking water wells in the vicinity of the landfill. The Navy has placed homes with impacted wells on the City of Oak Harbor water system or drilled deeper replacement wells.
- Implementing institutional controls

Since issuance of the 1993 ROD, 1,4-dioxane, an emerging environmental contaminant, was discovered in groundwater around Area 6. 1,4-Dioxane is used in the production of solvents and plastics, and is found at very low levels in food supplements, cosmetics, detergents, and shampoo. The current treatment system built in 1995 (air stripper technology) cannot remove 1,4-dioxane from groundwater. The EPA has set non-enforceable screening levels for the 1,4-dioxane, but Washington State lowered their cleanup level for 1,4-dioxane in groundwater in 2010 based on updated toxicity information.

The Navy, with assistance from the EPA, has been working to investigate the Site and determine the best approach to continue treatment of the COCs from the ROD, and to address 1,4-dioxane in groundwater. This Proposed Plan describes how the Navy proposes to address 1,4-dioxane in a ROD Amendment since 1,4-dioxane was not accounted for in the ROD, and is not treated by the current groundwater treatment system. The Preferred Alternative for remedial action (identified as Alternative 2) will use advanced oxidation processes (AOP) (refer to the glossary) at two groundwater treatment systems to remove chlorinated COCs and 1,4-dioxane from extracted groundwater.

Additionally, as part of the ROD Amendment, the Navy plans to eliminate 1,1-DCA and cis-1,2-DCE as COCs for OU 1. 1,1-DCA has never been measured at concentrations greater than the remediation goal in any of the groundwater samples collected from OU 1. cis-1,2-DCE has not been measured at concentrations greater than the remediation goal in any of the groundwater samples collected from OU 1 since 2008. Based on the measured concentrations of 1,1-DCA and cis-1,2-DCE throughout the plume, the 2018 FFS recommended that 1,1-DCA and cis-1,2-DCE be removed as COCs in the ROD Amendment. Data supporting the elimination of these COCs can be found in the Annual 2017-2018 Long Term Monitoring Report for Area 6.

Summary of the Proposed Alternatives

Six cleanup alternatives were considered to address 1,4-dioxane and remaining chlorinated COCs at Area 6. These included various combinations of groundwater treatment systems where the groundwater is extracted, treated, and replaced, and *in-situ* (in-place) treatment methods where the groundwater is treated without pumping it out of the ground (via chemical injections). The alternatives considered were:

1) No action, existing actions continue

2) **Preferred alternative. Groundwater treatment using AOP including new additional treatment plant to south, upgrading current treatment plant to AOP from air stripper and expanding the well network.**

3) *In-situ* groundwater treatment using chemical oxidation with base-activated persulfate injections

4) *In-situ* groundwater treatment using chemical oxidation with catalyzed hydrogen peroxide injections

5) Continued groundwater treatment system with expanded well network, discharging all water to the Navy Ault Field Wastewater Treatment Plant (WWTP)

6) Combination of alternatives 2 & 4. Groundwater treatment using AOP including new additional treatment plant to south, upgrading current treatment plant to AOP from air stripper and expanding the well network AND *in-situ* groundwater treatment using chemical oxidation with catalyzed hydrogen peroxide injections

The Preferred Alternative (identified as Alternative 2) using AOP to remove chlorinated COCs and 1,4-dioxane from extracted groundwater would consist of:

- Installing a new groundwater treatment system along State Route (SR) 20 that will use AOP to remove chlorinated COCs and 1,4-dioxane from extracted groundwater.
- Replacing the existing air stripper treatment system at Area 6 with an AOP system.
- Continued monitoring of the groundwater and system operation to evaluate the migration of contaminants and the effectiveness of the remedial action. The Preferred Alternative consists of an active phase, a passive phase, and land use controls. This integrated remedy will have a transition point from active (treatment systems) to passive (monitored natural attenuation) remediation. Specifically, when chlorinated COCs and 1,4-dioxane reach their transition point goals in the western and southern plumes, the AOP groundwater treatment systems will be shut down and site will move to monitored natural attenuation activities. Monitored natural attenuation is monitoring groundwater conditions to confirm and document that natural attenuation is occurring. Natural attenuation is reduction of COC concentrations by naturally occurring processes. Land use controls will be in place throughout the active and passive phases and they will be removed once groundwater has been cleaned up.

SITE CHARACTERISTICS

Source of Contamination

Area 6 is 260-acres and the municipal landfill occupies 40 of those acres at the southern portion of Area 6. This municipal landfill was utilized until 1992, when it was covered with synthetic fabric (to prevent rainwater infiltration), soil, and natural vegetation.

Liquid industrial waste was disposed of in a separate, unlined pit (Former Industrial Waste Disposal Area) located on the central west side of Area 6. The pit was 15 feet by 40 feet and 10 feet deep and received wastes from 1969 to the early 1980's. The pit was eventually filled and covered with natural vegetation.

The principal threat wastes are the municipal landfill and the former liquid industrial waste disposal area. The cap has addressed the landfill threat to the extent possible. Removal of impacted soil in the former liquid industrial waste disposal area has reduced this principal threat. The remaining principal threat waste is residual material in groundwater or soil that will leach to groundwater. The selected remedy addresses the principal threat waste.

Site Investigation and 1993 Record of Decision

In February of 1990, NAS Whidbey Island's Ault Field was listed as a NPL CERCLA site by EPA. A RI/FS was performed in 1991 to determine the nature and extent of groundwater and soil contamination. The RI/FS led to the 1993 ROD which documented the COCs (chlorinated VOCs) and the selected remedy including the landfill cap (completed in 1996), the current groundwater treatment system (air stripper) (operational in 1995), and performance monitoring using both groundwater monitoring and private drinking water wells.

In 2001, the Navy conducted an interim soil removal action and approximately 3,742 tons of contaminated soils were excavated from around the Former Industrial Waste Disposal Area. These soils were contaminated with chlorinated VOCs and were located 60 to 80 feet above the groundwater surface. The soils were properly disposed offsite.

1,4-Dioxane Discovered and Evaluated

In 2003, the EPA requested the Navy evaluate the groundwater at the Site for 1,4-dioxane as the EPA had identified 1,4-dioxane at non-Navy sites that had solvent contamination present, and the Navy identified 1,4-dioxane at Area 6 in 2003. In 2005, the Navy conducted off-base drinking water sampling of 13 wells, 1,4-dioxane was not detected at concentrations greater than the Washington State health-based cleanup standard for 1,4-dioxane in groundwater at that time (7.95 microgram per liter [µg/L]) in any of the drinking water wells. As a result of the 2005 sampling effort, the Navy did proactively replace one well with detected 1,4-dioxane concentrations with a deeper well that was free of 1,4-dioxane for a private off-site owner. During 2008, four additional groundwater monitoring wells were installed along the northwestern shoulder of SR 20 to further refine the extent of 1,4-dioxane in groundwater. The Navy has continued to conduct off-base water sampling around Area 6 including most recently in 2018. In 2018, 16 drinking water wells and 10 groundwater wells were sampled south and west of Area 6 and no drinking water or groundwater wells had 1,4-dioxane concentrations greater than the Washington State cleanup level for 1,4-dioxane in groundwater.

The Navy began evaluating alternatives to address the wide-spread, diluted 1,4-dioxane plume (shown later in Figure 7) in 2009. Numerous treatability and pilot test studies were conducted from 2009 until 2017. Additional information regarding the types of technologies and bench-scale and pilot testing results to treat 1,4-dioxane and chlorinated COCs can be found in the FFS. A brief summary of the potential cleanup alternatives presented in the FFS are provided in subsequent sections of this Proposed Plan.

Groundwater Plume Locations

Continued groundwater monitoring around the Site helps to measure the effectiveness of the groundwater extraction and treatment system. Two distinct groundwater plumes for chlorinated COCs at Area 6 have been identified as:

- the western groundwater plume which originates from the Former Industrial Waste Disposal Area along the west side of Area 6; and,
- the southern groundwater plume which extends offsite to SR 20 where contaminants potentially originate from the capped landfill and have migrated south past the landfill boundary prior to the operation of the groundwater treatment system.

The TCE, 1,1,1-TCA, and 1,1-DCE groundwater concentrations greater than the remediation goals established in the 1993 ROD are contained to the western groundwater plume and have not migrated south past the landfill boundary. The 1,4-dioxane plume extends across both the western and southern groundwater plume areas. The southern groundwater plume consists of vinyl chloride and 1,4-dioxane that have migrated south past the landfill boundary prior to the operation of the groundwater treatment system. The following figures have been provided:

- Figure 3 showing TCE concentrations in groundwater and groundwater plumes are illustrated with shading showing concentrations above the current remediation goal of 5 µg/L
- Figure 4 showing 1,1,1-TCA concentrations in groundwater and groundwater plumes are illustrated with shading showing concentrations above the current remediation goal of 200 µg/L
- Figure 5 showing 1,1-DCE concentrations in groundwater and groundwater plumes are illustrated with shading showing concentrations above the proposed remediation goal of 7 µg/L
- Figure 6 showing vinyl chloride concentrations in groundwater and groundwater plumes are illustrated with shading showing concentrations above the current remediation goal of 0.10 µg/L
- Figure 7 showing 1,4-dioxane concentrations in groundwater and groundwater plumes are illustrated with shading showing concentrations above the proposed remediation goal of 0.44 µg/L

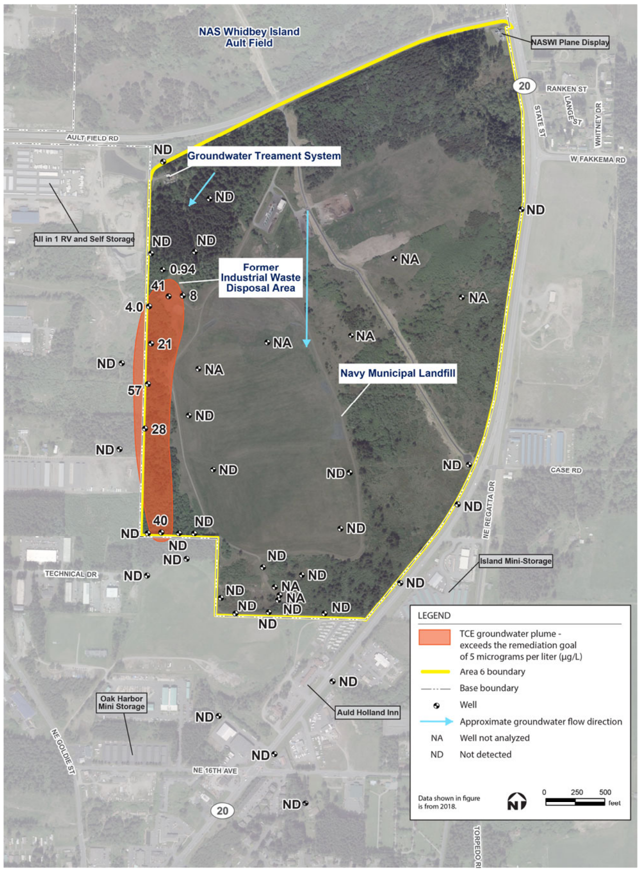

Figure 3– TCE Concentrations in Groundwater

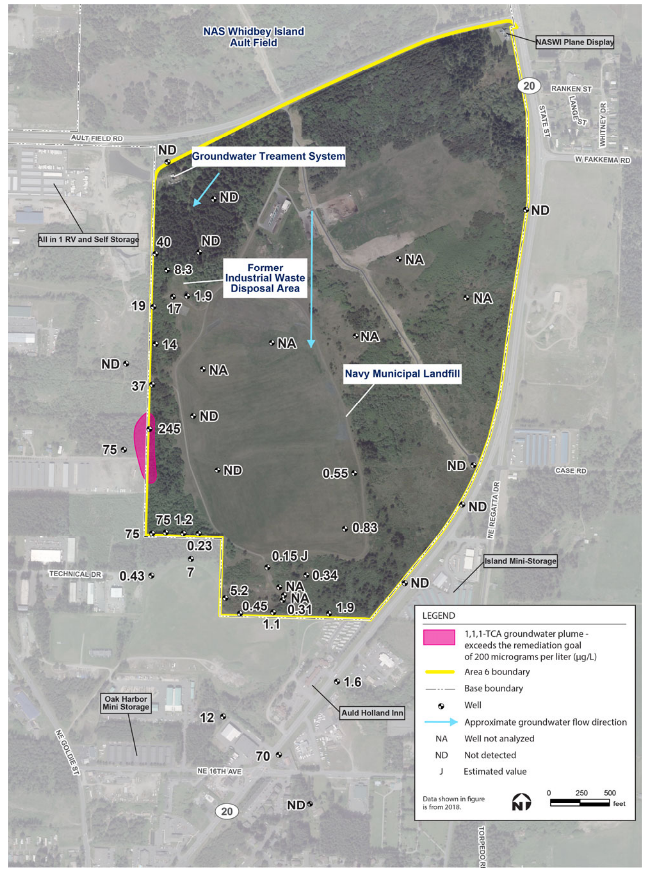

Figure 4 – 1,1,1-TCA Concentrations in Groundwater

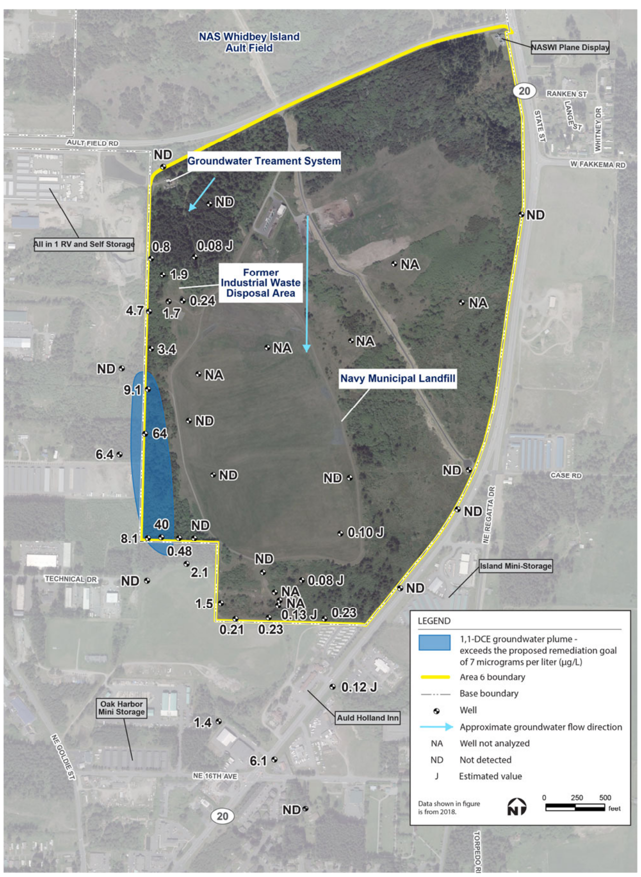

Figure 5– 1,1-DCE Concentrations in Groundwater

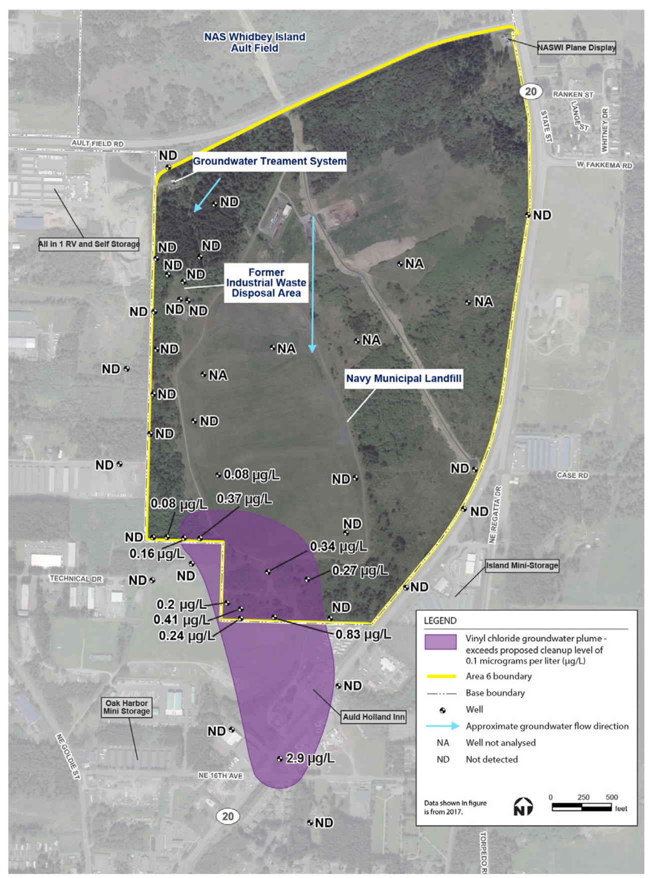

Figure 6– Vinyl Chloride Concentrations in Groundwater

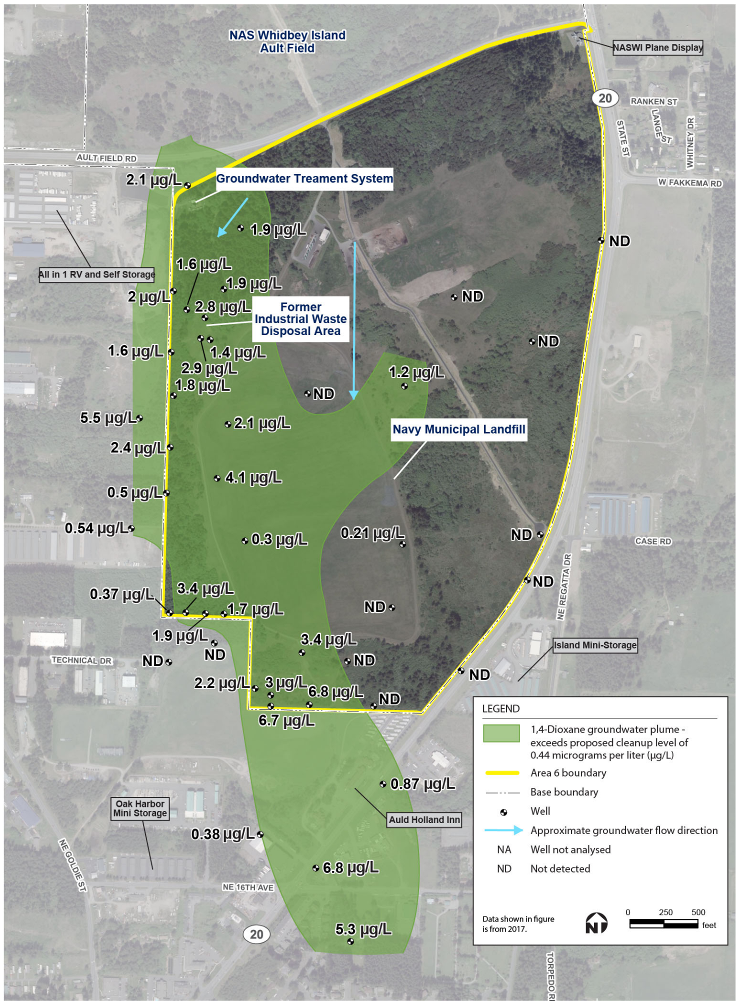

Figure 7– 1,4-Dioxane Concentrations in Groundwater

Current and Future Land Use

A 40-acre landfill and a composting facility are currently present at the Site. The anticipated future land use is for the Site to remain as a landfill and continue as a composting facility. It is reasonable to assume future use by the installation will remain industrial with no residential or commercial use. Groundwater at the Site is considered to be a potential drinking water source downgradient of the Site. However, this condition is impacted by the presence of the landfill at the Site and the City of Oak Harbor landfill immediately adjacent to the Site. The State of Washington restricts well installation within 1,000 feet of landfills. Commercial and residential properties are present south of the Oak Harbor landfill. The future anticipated use of these areas is expected to remain as commercial or residential. Groundwater is used as a drinking water source at some of these residences. As part of the annual Land Use Controls (LUC) inspection process conducted by the Navy, Island County Public Health is contacted regarding well installation or drilling activities within the boundaries of Ault Field and Seaplane Base as well as within an approximate 1-mile buffer around these boundaries. Restrictions on well installation activities and groundwater use within and downgradient of Area 6 are considered to have been properly and effectively implemented based on the findings of the 2018 LUC inspection.

SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION

Potential source areas at the Site have been grouped into separate OUs, for which different cleanup schedules were established by the Navy. Included in OU 1 are Areas 5 and 6. OU 1 is the first OU at the Site for which a final cleanup action was selected in the 1993 ROD. Cleanup actions were selected and RODs were issued in late 1993 for OU 4 (Seaplane Base) and in 1994 for OUs 2, 3, and 5 (Ault Field).

OU 1 Area 5 also known as Highway 20/Hoffman Road Landfill was an approximate 500 foot by 500-foot area that was used for gravel excavation. It is located north of Ault Field Road and west of SR 20 (north of Area 6). There were concerns at the time that Area 5 was used for disposal of domestic garbage, construction debris and demolition rubble, excavation spoils, and liquid wastes (including paints, thinners, solvents, strippers, hydraulic fluid, waste oils, and waste fuel) from aircraft service and maintenance activities. Actions for Area 5 were limited to monitoring groundwater for metals. Based on monitoring program results below cleanup levels, groundwater monitoring has been terminated, and institutional controls remain in place at OU 1 Area 5. Institutional controls limit actions that can be conducted at Area 5 to ensure human health and the environment remain protected.

The cleanup actions described in the 1993 ROD for OU 1 Area 6 address on-site groundwater contamination and source areas associated with surface disposal at the Former Industrial Waste Disposal area and landfill operations area. The groundwater treatment system was constructed and operated at Area 6 as a result of the 1992 OU1 interim action ROD. The final remedy, which was the landfill cap for Area 6 and the groundwater treatment system, was formally selected in the final OU1 1993 ROD. At the time the 1993 ROD for OU 1 Area 6 was signed, the cleanup actions described in the final ROD addressed all known current and potential risks to human health and the environment. The 2003 identification of 1,4-dioxane in groundwater at OU 1 Area 6 has resulted in reevaluation of the remedy specified in the 1993 ROD.

SUMMARY OF SITE RISKS

The primary noncancer health effects associated with exposure to 1,4-dioxane are liver, kidney, and nasal cavity toxicity. EPA considers 1,4-dioxane as "likely to be carcinogenic to humans," and liver tumors are the most frequently observed type of cancer in animal studies.

Two types of human health effects are considered in the CERCLA process, the potential risk of developing cancer and the potential for non-cancer health effects. Cancer risks are generally expressed as a probability; for example, a "1 in 10,000 risk," which means that one extra case of cancer would be expected for every 10,000 people as a result of exposure to site contaminants. Non-cancer health effects are evaluated by comparing site-related concentrations to which people may be exposed to a concentration expected to be without any adverse noncancer health effects. The ratio is called a hazard index (HI), and as long as it is less than 1, non-cancer health effects are not considered likely.

Exposure based on the maximum detected COC concentrations measured in 2018:

- The maximum 2018 TCE concentration would result in an excess cancer risk of 4 in 10,000 and a HI of 20 for a child and 18 for an adult. It should be noted TCE is contained to the western plume by the current groundwater treatment system.
- The maximum 2018 vinyl chloride concentration would result in an excess cancer risk of 3 in 100,000 and a HI of less than 1.
- The maximum 2018 1,1,1-TCA and 1,1-DCE concentrations do not pose an excess cancer risk or hazard index.
- The maximum 2018 concentration for 1,4-dioxane would result in an excess cancer risk of 2 in 100,000, and a HI of less than 1.

The greatest current health risk at Area 6 is that 1,4-dioxane or vinyl chloride could migrate offsite to private wells south of Area 6.

The closest surface water exposure would be at Crescent Harbor, located approximately 1.7 miles south-southeast of the southern site boundary. Washington State and EPA do not currently have surface water quality levels established for 1,4-dioxane. COC concentrations are expected to decrease substantially before the groundwater plume reaches Crescent Harbor via natural attenuation. The Preferred Alternative is intended to increase this concentration reduction. The health of terrestrial wildlife was also considered; their main risk lies in the ingestion of soil and food. However, surface soil contamination was not identified so this threat is thought to be nonexistent as there is no complete exposure pathway. Groundwater ranges from 80 to 130 feet below the ground surface. Therefore, there is no complete exposure to groundwater by ecological receptors.

It is the Navy's current judgment that the Preferred Alternative identified in this Proposed Plan, or one of the other active measures considered in the Proposed Plan, is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

REMEDIAL ACTION OBJECTIVES

Remedial Action Objectives (RAOs) are goals that a cleanup should achieve. They were developed during the Site's feasibility study to assist in identifying remedial alternatives that protect human health and the environment. The RAOs are:

- Reduce the potential risk from 1,4-dioxane, vinyl chloride, TCE, 1,1,1-TCA, and 1,1-DCE to current and future groundwater users downgradient of the Site.
- Actively remediate 1,4-dioxane, vinyl chloride, TCE, 1,1,1-TCA, and 1,1-DCE in the western and southern plume to the maximum extent practicable followed by monitored natural attenuation until remediation goals are met.

This Preferred Alternative is an integrated remedy. This means that active treatment to the maximum extent practicable will be followed by passive treatment. Maximum extent practicable is defined as active treatment completed by meeting the active treatment goal of specified COCs as presented in Table 1 (transition point), or asymptotic conditions for specified COCs, whichever occurs first. The transition from active to passive treatment will be determined by specific COC concentrations. The Navy and EPA have established two criteria by which the decision will be made to transition from active to passive treatment. The decision to transition will be made when one of the two conditions occurs first:

- COC concentrations in groundwater from monitoring wells reach their transition point concentrations (3 times their respective preliminary remediation goals [PRGs])
- COC concentration trends in extraction wells are asymptotic (meaning the concentrations are no longer decreasing)

Table 1 presents the numerical goals (PRGs) for groundwater, which were established based on concentrations stated in Washington's Model Toxics Control Act (MTCA) and the Federal Safe Drinking Water Act (SDWA). Table 1 also presents the COC concentrations when achieved will be the transition point from active to passive remediation. As part of the ROD Amendment, the Navy plans to eliminate 1,1-DCA and cis-1,2-DCE as COCs for the Site as groundwater concentrations have been below remediation goals since at least 2008.

Table 1. Preliminary Remediation Goals for Groundwater

Constituent	Current Remediation Goal (µg/L)	Recommended ROD Amendment Remediation Goal (µg/L)	Transition Point from Active to Passive Remediation[c] (µg/L)	Maximum Concentration Detected at Site February 2018 (µg/L)
Trichloroethene (TCE)	5	5	15	57
1,1,1-Trichloroethane (1,1,1-TCA)	200	200	600	245
1,1-Dichloroethene (1,1-DCE)	0.07	7	21	64
Vinyl Chloride	0.1	0.29[a]	2	0.56
1,4-Dioxane	NE	0.44[b]	1.32	10

[a]The MTCA Method B groundwater cleanup level is based on a $1x10^{-6}$ risk. The proposed RG is based on a $1x10^{-5}$ risk which is consistent with the risk magnitude allowed in the 1993 ROD.
[b]EPA has set non-enforceable screening levels for 1,4-dioxane. The MTCA Method B groundwater cleanup level is being used as the RG.
[c]Active treatment goals are 3 times their respective RGs, with the exception of vinyl chloride which is based on the MCL.

Notes:
µg/L - microgram per liter
RGs – Remediation Goals
NE – not established in the 1993 ROD

REMEDIAL ALTERNATIVES

The goal of remedial alternatives is to prevent further migration of 1,4-dioxane (Figure 7) and the chlorinated COCs from the source areas, and to actively remediate contaminated groundwater to the maximum extent practicable followed by monitored natural attenuation. If the contaminants don't flow off-site through the underground plume, residential well users cannot be exposed to these contaminants. Chlorinated contaminants such as vinyl chloride in the southern plume (Figure 6) and TCE (Figure 3) in the western plume need continued treatment for the same reason.

Remedial alternatives, or "cleanup" options, that would meet the RAOs above were identified in the FFS, including five primary cleanup alternatives and a sixth alternative created from a combination of two of the primary alternatives. All of the alternatives include common elements that are:

- Continued operation and monitoring of the groundwater wells
- Preparation of 5-year review reports
- Residential and monitoring well sampling
- Implementation of site-wide land use controls like the landfill caps and groundwater use restrictions.

- Transitioning from an active phase to a monitored natural attenuation passive phase

The costs to perform these baseline elements are assumed equal for each of the six alternatives, so these costs have not been discussed under each alternative. Timing and costing information is summarized in Table 2.

The six remedial alternatives considered by the Navy are as follows:

Alternative 1 – No action, existing actions continue:

A "No-action" alternative is retained as a baseline for comparison of other alternatives and to help ensure that unnecessary remedial action is not taken where the current action is appropriate. The "continue with the current system" alternative consists of allowing the Site to remain in its present condition with continued operation of the groundwater treatment system with the existing air stripper tower which does not treat 1,4-dioxane. This system currently discharges treated water to the ground surface where the water reinfiltrates to the subsurface. This alternative is already constructed and would require no time to implement. It is not expected to achieve PRGs and would not meet the primary applicable or relevant and appropriate requirements (ARARs) of the SDWA and MTCA.

Alternative 2 (Preferred Alternative) – Groundwater treatment using AOP including new additional treatment plant to south, upgrading current treatment plant to AOP from air stripper and expanding the well network.

A new groundwater treatment system (southern plant) would be installed along SR 20 that will use AOP to remove chlorinated COCs and 1,4-dioxane from extracted groundwater. The existing air stripper treatment system at Area 6 (western plant) would be replaced with an AOP system. The implementation of the replacement AOP system (western plant) would be initiated following one year of continuous operation of the southern AOP system. The one year of continuous operation will be used to determine if the AOP is working properly with Site conditions and to apply any lessons learned to the western plant. As part of this replacement, based on groundwater modeling, the Navy may expand the groundwater extraction network in the western plume with up to four new pumping wells. Commercially available AOP systems have met the discharge requirements specified in the SDWA and MTCA at other sites with these contaminants. A National Pollutant Discharge Elimination System (NPDES) permit will not be required. This alternative is anticipated take 15 months to two years to plan, construct, and start operation. The system is anticipated to achieve the PRGs in 30 years and would meet the primary ARARs of the SDWA and MTCA.

Alternative 3 – *In-situ* groundwater treatment with chemical oxidation using base-activated persulfate

This alternative would treat impacted groundwater migrating off site along the western and southwestern boundaries of the Site, and also along the southern leading edge of the plume near SR 20 by using *in-situ* injection via reusable injection wells (hundreds of wells up to 140 feet deep). The injection of in-situ chemical oxidation (ISCO) (refer to glossary) chemicals (base-activated persulfate) into the groundwater zone would chemically destroy the 1,4-dioxane and the chlorinated COCs. It is expected that ISCO will meet the RGs specified in the SDWA and MTCA, although sulfate levels in groundwater may exceed the secondary drinking water standard of 250 mg/L. This alternative would need to meet the substantive requirements of the Washington State Underground Injection Control permit administered by Washington State Department of Ecology (Ecology). The area needing treatment is large, so ISCO will take multiple years and injection cycles to complete. The current groundwater treatment system would continue operation during ISCO treatment. The system is anticipated to achieve the PRGs in 20 years and would meet the primary ARARs of the SDWA and MTCA.

Alternative 4 – *In-situ* groundwater treatment with chemical oxidation using catalyzed hydrogen peroxide

This alternative is similar to Alternative 3 with the main difference being that the ISCO chemical used would be catalyzed hydrogen peroxide instead of base-activated persulfate. Using catalyzed hydrogen peroxide would require more injection points since it reacts faster than base-activated persulfate but the tradeoff is it is a less expensive chemical. It is expected that ISCO will meet the RGs specified in the SDWA and MTCA. This alternative would need to meet the substantive requirements of the Washington State Underground Injection Control permit administered by Ecology. The system is anticipated to achieve the PRGs in 20 years and would meet the primary ARARs of the SDWA and MTCA.

Alternative 5 –Continued groundwater treatment system with expanded well network, discharging all water to the Navy Ault Field Wastewater Treatment Plant (WWTP)

Existing and new extraction wells would be used to extract groundwater containing chlorinated COCs and 1,4-dioxane around Area 6 including to the south along SR 20. The major deviation from other alternatives is that the treatment will be completed off site by pumping the extracted groundwater to the existing Navy Ault Field WWTP. The WWTP would need to be modified to process the extracted groundwater and the WWTP permit would require modification. The WWTP operates under an existing NPDES permit. A revision of this permit will be required for this alternative. With addition of a carbon substrate injection system, the WWTP is expected to meet revised NPDES discharge limits. This alternative is anticipated take 15 months to two years to plan, construct, and start operation. The system is anticipated to achieve the PRGs in 30 years and would meet the primary ARARs of the SDWA and MTCA.

Alternative 6 – Combination of Alternatives 2 and 4 – Groundwater treatment using AOP including new additional treatment plant to south, upgrading current treatment plant to AOP from air stripper and expanding the well network AND *in-situ* groundwater treatment using chemical oxidation with catalyzed hydrogen peroxide injections

Catalyzed hydrogen peroxide injections would be used in the western plume area (part of Alternative 4) in conjunction with the AOP groundwater treatment systems (Alternative 2) to accelerate treatment and reduce the required operation time of the western plant. Commercially available AOP systems have met the discharge requirements specified in the SDWA and MTCA at other sites with these contaminants. A NPDES permit will not be required. It is expected that ISCO will meet the RGs specified in the SDWA and MTCA. This alternative would need to meet the substantive requirements of the Washington State Underground Injection Control permit administered by Ecology. This alternative is anticipated take two to three years to plan, construct, and start operation. The system is anticipated to achieve the PRGs in 30 years and would meet the primary ARARs of the of the SDWA and MTCA.

EVALUATION OF ALTERNATIVES

The EPA has established nine criteria for use in comparing the advantages and disadvantages of cleanup alternatives. These criteria fall into three groups, threshold criteria, primary balancing criteria, and modifying criteria. These nine criteria are explained in the text box to the right.

This section of the Proposed Plan explains and compares each of the evaluated alternatives to seven of the nine criteria. The other two modifying criteria, State Agency and Community Acceptance, will be evaluated following the public comment period. The evaluation criteria are summarized in Table 2. The detailed analysis of alternatives can be found in the FFS.

Threshold Criteria

In relation to the two Threshold Criteria, the most important aspects in choosing an alternative, the alternatives were assigned the same ratings for both criteria:

- Alternative 1 does not meet criteria
- Alternatives 2, 3, 4, 5, & 6 meet criteria

It should be noted that groundwater extraction is a more dependable and also more easily measured process than ISCO injections. ISCO injections come with an inherent level of uncertainty as consistent delivery of the chemical oxidant to impacted groundwater at depths of up to 140 feet is challenging. Alternative 1 would not be protective because the Site would remain as it is today and 1,4-dioxane would not be addressed. The same institutional controls are proposed under each alternative and so would provide equal protection. Alternatives 2, 3, 4, 5, & 6 would meet their respective ARARs from Federal and State laws.

Balancing Criteria

In relation to "Long-Term Effectiveness and Permanence", Alternatives 2, 5, and 6 are considered "excellent" as they will maintain plume control and reduce contaminant mass; while Alternatives 3 and 4 (ISCO) are considered "good." Alternatives 2, 5, and 6 have the lowest uncertainty for maintaining plume control and treating groundwater because groundwater extraction has been shown to control the groundwater plume at this Site and AOP has demonstrated it can remove the COCs. Alternatives 3 and 4 have uncertainty

What are the Nine Evaluation Criteria?

Threshold Criteria (The selected remedy must satisfy these criteria.):

Overall Protection of Human Health and the Environment determines whether an alternative eliminates, reduces, or controls threats to public health and the environment.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified. Three types of legal requirements are addressed in a cleanup action:

- Chemical-specific ARARs address concentrations of contaminants that must be cleaned up.
- Action-specific ARARs regulate how a cleanup remedy is implemented. Regulations define where and how contaminants are managed.
- Location-specific ARARs address legal issues for special locations such as wetlands and tribal lands.

Balancing Criteria (These criteria are used to weigh the relative merits of the alternatives.):

Long-Term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time.

Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.

Short-Term Effectiveness considers the length of time needed to implement an alternative and the risk the alternative poses to workers, residents, and the environment during implementation and until cleanup levels are achieved.

Implementability considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

Cost includes estimated capital and annual operation and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

Modifying Criteria (These criteria are also considered during remedy selection and incorporated into the ROD.):

State/Support Agency Acceptance considers whether the state agrees with the Navy's analyses and recommendations, as detailed in the FFS and Proposed Plan.

Community Acceptance considers whether the local community agrees with the Navy's analyses and Preferred Alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

relative to maintaining plume control. The uncertainty is from how many injection wells will actually be needed to treat groundwater and how often will injections be required.

In relation to "Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment", Alternatives 2, and 6 were rated "excellent" because of the higher confidence for groundwater extraction to contain the plumes, reduce their mobility, and treat the extracted groundwater. Alternative 5 was rated "good" because although the groundwater extraction is the same as Alternatives 2 and 6 the remedy does not involve chemical destruction like AOP. Alternatives 3 and 4 (ISCO) are considered "good" because there is higher uncertainty in how many injection wells will be required to reduce mobility and allow the treatment chemicals to reach contaminants in the plume. The time to achieve PRGs are anticipated to be approximately 30 years for Alternatives 2, 5 and 6 and 20 years for Alternatives 3 and 4.

In relation to "Short-Term Effectiveness", Alternatives 2 and 5 were rated highest for short-term effectiveness ("good") as they represent the least amount of effort required to address off-Navy property contamination that would expose the community and workers to potential construction hazards and inconveniences. Alternatives 3, 4, and 6 were rated "adequate" as they would require long construction times for injection well installation. The time to implement Alternatives 2 through 6 are all expected to be approximately one year.

In relation to "Implementability", Alternative 2 is rated "good" based on its use of existing technology and having the lowest number of off-site components. Alternative 5 was rated "adequate" because of the need to construct a discharge pipeline across Ault Field Road to the nearest sanitary sewer system connection at Ault Field. Alternatives 3, 4, and 6 were rated "adequate" because of the higher level of off-site infrastructure installation and long-term injections required. Following installation, crews would need to occupy these locations multiple times per year to inject oxidant to create the ISCO barrier.

In relation to "Cost", total cost is rated based on the estimated cost for each alternative to achieve remediation goals. Alternatives are rated for total cost as follows:

- Alternative 1 "poor" (Total Present-Worth Cost: $12,800,000)
- Alternative 2 "excellent" (Total Present-Worth Cost: $18,300,00)
- Alternative 3 "poor" (Total Present-Worth Cost: $41,800,000)
- Alternative 4 "poor" (Total Present-Worth Cost: $38,600,000)
- Alternative 5 "good" (Total Present-Worth Cost: $21,500,000)
- Alternative 6 "adequate" (Total Present-Worth Cost: $27,600,000)

Evaluation Summary

Overall, Alternatives 2 and 6 received the highest overall ratings, but Alternative 2 is rated higher than 6 for its short-term effectiveness, implementability, and total cost. As noted above, the two groundwater extraction and treatment plants will have a higher certainty of controlling the plume than ISCO injections. The rating for ISCO is decreased further by the high costs necessary for the large number of injection wells required to saturate the entire plume with oxidizing chemicals. Based on this analysis, Alternative 2 is the Preferred Alternative.

Table 2: Criteria Ratings for Remedial Alternatives

Alternative	1 "No action"	2 Ground-water treatment using AOP	3 ISCO Injections (persulfate)	4 ISCO Injections (hydrogen Peroxide)	5 Ground-water extraction to Navy Ault Field WWTP	6 Combination of 2 & 4
Threshold Criteria						
Overall protection of human health and the environment Compliance with regulations	Does not meet criteria	Meets criteria	Meets criteria	Meets criteria	Meets criteria	Meets criteria
Balancing Criteria						
Provide long-term effectiveness and is permanent • Will the effects of the cleanup last?	Not Rated	◕	◑	◑	◕	◕
Reduces mobility, toxicity, and volume of contaminants through treatment	Not Rated	◕	◑	◑	◑	◕
Provides short-term protection • How soon will the site risks be reduced? • Are there hazards to workers, residents, or the environment that could occur during cleanup?	Not Rated	◑	◔	◔	◑	◔
Can be implemented • Is the alternative technically feasible? • Are the goods and services necessary to implement the alternative readily available?	Not Rated	◑	◔	◔	◔	◔
Cost ($) • Upfront cost to design and construct the alternative (called capital cost, includes initial removal) • Operating and maintaining any system associated with the alternative (called O&M cost) • Total cost in today's dollars (called the present worth cost)	Not Rated $0.5M $18.9M / 30 years $12.8M	● $3.97M $21.7M / 9 years Western System/ 17 years South System $18.3M	○ $38.5M $6.5M / 5 years Western System/ 7 years of injections $41.8M	○ $34.8M $6.6M / 5 years Western System/ 7 years of injections $38.6M	◕ $3.9M $26.5M / 9 years Western System/ 17 years South System $21.5M	◔ $16M $15.8M / 30 years $27.6M
• Total Project Duration The FFS costs assumed a 30 year period for the active and passive components of alternatives 1, 2, 5, and 6 to achieve the RAOs. The FFS costs assumed a 20 year period for the active and passive components of alternatives 3 and 4 to achieve the RAOs.						
Modifying Criteria						
State agency acceptance • Do state agencies agree with the Navy's recommendation?	To be determined after the public comment period.					
Community acceptance • What objections, suggestions, or modifications does the public offer during the comment period?	To be determined after the public comment period.					

Notes:
Cost ($): M –Million
AOP – advanced oxidation process
ARARs – applicable or relevant and appropriate requirements
ISCO – *in-situ* chemical oxidation
WWTP – wastewater treatment plant

Relative comparison of Criteria and each alternative:
● "Superior" ◕ "Excellent" ◑ "Good" ◔ "Adequate" ○ "Poor"

PREFERRED ALTERNATIVE: CLEANUP ALTERNATIVE 2

The new southern AOP plant is proposed to be constructed at the southeast corner of the Site and will treat extracted groundwater from the new extraction wells along SR 20, running southwest to northeast south of the Area 6 boundary.

Piping and infrastructure would be necessary to transport the groundwater from the wells to the treatment plant. Figure 8 shows the proposed locations of the new extraction wells along SR 20 and the southern AOP plant for the preferred cleanup alternative.

A new discharge pipeline would extend north from the southern treatment plant, along the eastern side of the landfill, and would bring the treated water to the same discharge point as the existing western plant, where it would be discharged to a small wetland area at ground surface. Commercially available AOP systems, as specified for this alternative, have met the discharge requirements specified in the SDWA and MTCA at other sites with these contaminants. A NPDES permit will not be required.

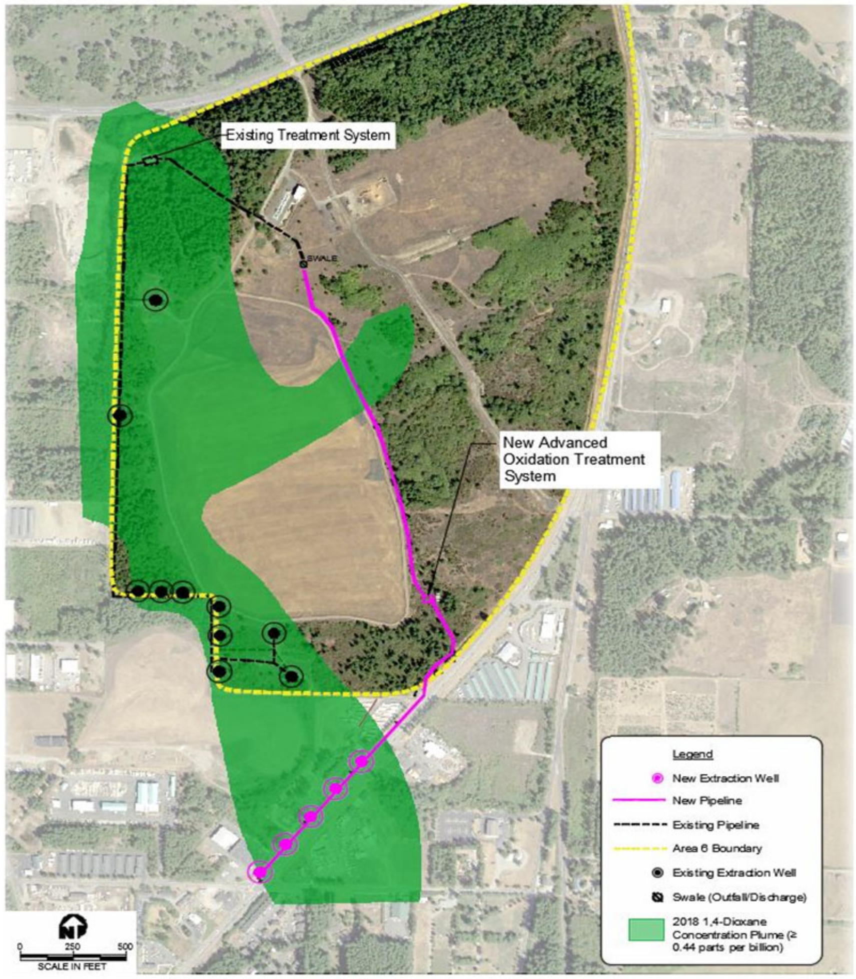

Figure 8 - Alternative 2 Elements

The current groundwater extraction and treatment plant (western plant), which operates at the northwest corner of the property, would be upgraded to an AOP plant at the same location. The implementation of the replacement AOP system would be initiated following one year of continuous operation of the southern AOP system. The one year of continuous operation would be used to determine if the AOP is working properly with site conditions and to apply any lessons learned to the western plant. As part of this replacement, based on timely groundwater modeling, the Navy may expand the groundwater extraction network in the western plume.

When chlorinated COCs and 1,4-dioxane reach the "transition point from active to passive treatment goals" (Table 1) in the western and southern plumes, the extraction networks and AOP groundwater treatment systems will be shut down. Computer modeling has predicted the southern plant will operate longer than the western plant to reach this transition point. When active treatment goals are achieved, the Site will move to monitored natural attenuation activities. Groundwater will continue to be sampled, but groundwater extraction and treatment will cease and natural processes will continue to reduce COC concentrations.

Groundwater modeling predicts that active treatment goals would be reached in approximately 8 to 10 years in the western plume with the optimized extraction network and approximately 17 to 20 years in the southern plume area. These are modeling predictions and actual times will likely vary. The time to meet PRGs is anticipated to be approximately 30 years.

Statement of Agency Acceptance:

Based on information currently available, the Navy believes the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to the balancing and modifying criteria. The Navy expects the Preferred Alternative to satisfy the following statutory requirements of Section 121(b) of CERCLA, 42 U.S.C. § 9621(b):

1) Be protective of human health and the environment;
2) Comply with ARARs;
3) Be cost-effective;
4) Utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and
5) Satisfy the preference for treatment as a principal element.

Based on available information, the EPA concurs with the Navy's selection of the Preferred Alternative.

COMMUNITY PARTICIPATION:

Public Involvement Requested:

The Navy and EPA request your comments on this Proposed Plan, including all of the alternatives presented. The Navy will consider all comments received in the process of finalizing the ROD Amendment. A Responsiveness Summary will be included with the ROD Amendment, discussing the public comments received and how they were addressed. Please see the information box to the right regarding how to provide comments and public meetings.

Location of the Administrative Record:

The Administrative Record, containing all documents pertaining to the project, is maintained at Naval Facilities Engineering Command Northwest. Members of the public may request a copy of these items by contacting the NAVFAC Northwest Public Affairs Officer at (360) 396-1030. During the public comment period, the FFS Report may be reviewed at the Oak Harbor/Sno-Isle Library, 1000 SE Regatta Dr, Oak Harbor, WA 98277. The FFS Report may be viewed online at **https://navfac.navy.mil/NASWIRAB.**

How to Provide Input to the Navy:

There are two ways to provide comments during the public comment period, which is from November 21, 2018 until December 21, 2018:

- Provide written comments when attending the planned open-house public meeting; or
- Provide written comments by mail or e-mail to the Navy no later than December 21, 2018 (see contact information below).

OPEN-HOUSE PUBLIC MEETING:

DECEMBER 5, 2018, from 5:30 PM to 7:30 PM
NAS Whidbey Island Chief Petty Officers' Club
1080 W. Ault Field Road, Oak Harbor, Washington

You are invited to attend an open-house public meeting to discuss information presented in this Proposed Plan regarding OU1 Area 6 at Naval Air Station Whidbey Island. Navy representatives will provide visual displays and information on the investigations, removal actions completed, and the cleanup alternatives evaluated. You will have the opportunity to ask questions and provide written comments on the alternatives. As this is an open-house meeting, you may attend at any time that evening.

PUBLIC COMMENT PERIOD:

November 21, 2018 to December 21, 2018

We encourage you to comment on this Proposed Plan during the 30-day public comment period. You may submit written comments by mail, postmarked no later than December 21, 2018:

Leslie Yuenger
Public Affairs Officer
Naval Facilities Engineering Command NW
1101 Tautog Circle, Suite 203
Silverdale, WA 98315-1101

Comments may also be sent to Ms. Yuenger via e-mail at Pao_Feedback@navy.mil. Public comments received during this period will be included in the Responsiveness Summary section of the ROD Amendment and considered in the final cleanup action decisions for Area 6.

Glossary

Advanced oxidation processes (AOP): A set of chemical treatment procedures designed to remove organic materials in water by oxidation through reactions with hydroxyl radicals (·OH). Related to Area 6, AOP systems are proposed in this Proposed Plan to remove chlorinated COCs and 1,4-dioxane from extracted groundwater.

Administrative Record: Contains the documents that form the basis for the selection of the response action (*e.g.*, why the Navy decided to conduct a cleanup in a particular manner), including documentation showing how the public was involved in selecting the cleanup.

Applicable or Relevant and Appropriate Requirements (ARARs): Cleanup standards, standards of control, and other substantive requirements, criteria or limitations promulgated under federal environmental laws or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance, and are determined to be legally applicable or relevant and appropriate to remedial actions at a CERCLA site.

CERCLA/SARA: Comprehensive Environmental Response, Compensation, and Liability Act, as modified by the Superfund Amendments and Reauthorization Act (SARA) of 1986, is a federal government act. Commonly known as Superfund, sets up a program for identifying sites containing hazardous substances that have been or might be released to the environment and cleans up uncontrolled or abandoned hazardous-waste sites as well as accidents, spills, and other emergency releases of pollutants and contaminants into the environment.

Chemicals of concern (COCs): Chemicals that are believed to be site-related contaminants and pose risks to human health or the environment.

Cleanup level: The concentration of a chemical in soil, water, air, or sediment that is protective of human health and the environment under specified exposure conditions.

Downgradient: The direction in which groundwater flows at a fixed point of reference such as a groundwater monitoring well.

Effluent piping: Piping lines that transport treated water from the groundwater treatment system to the discharge point.

Exposure pathway: The physical route by which a contaminant moves from a source to a biological organism (the receptor).

Ex-situ: *Ex situ* processes involve the removal of the contaminated media to a treatment area. *Ex-situ* treatment of groundwater would occur by pumping/extracting the groundwater and then treating it.

Focused Feasibility Study (FFS): A report that presents the description and analysis or evaluation of potential remedial alternatives for a site.

Groundwater: The supply of freshwater beneath the earth's surface often used to supply wells and springs.

Groundwater plume: A plume is an underground area of contaminant concentrations originally created by the movement of groundwater through a contaminant source. The plume generally spreads in the direction of groundwater movement.

Influent piping: Piping lines that transport extracted groundwater from the extraction wells to the groundwater treatment system.

In-situ: *In-situ* processes occur in place. *In-situ* treatment of groundwater would occur by treating the groundwater in the ground through injection points

***In-situ* chemical oxidation (ISCO):** ISCO is a remediation technology where a chemical oxidant is injected into the subsurface to oxidize or transform contaminants in groundwater or soil into innocuous byproducts.

Institutional Controls: non-engineered instruments such as administrative and legal controls that help minimize the potential for human exposure to contamination and/or protect the integrity of the remedy. Institutional controls are used when contamination is first discovered, when cleanups are ongoing and when residual contamination remains on site at a level that does not allow for unlimited use and unrestricted exposure after cleanup.

Monitored Natural Attenuation (MNA): A technique used to monitor or test the progress of natural attenuation processes that can degrade contaminants in soil and groundwater. It may be used with other remediation processes as a finishing option or as the only remediation process if the rate of contaminant degradation is fast enough to protect human health and the environment. Natural processes can then mitigate the remaining amount of pollution; regular monitoring of the soil and groundwater can verify those reductions.

Model Toxics Control Act (MTCA): Washington State's environmental cleanup law**.** MTCA directs the investigation, cleanup, and prevention of sites that are contaminated by hazardous substances.

National Priority List (NPL): The list of sites of national priority among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the United States and its territories. The NPL is intended primarily to guide the EPA in determining which sites warrant further investigation.

Record of Decision (ROD): An official document that describes the selected cleanup action for a specific site. The ROD documents the cleanup selection process and is issued by the Navy following the public comment period.

Volatile organic compounds (VOCs): organic chemical compounds whose composition makes it possible for them to evaporate under normal indoor atmospheric conditions of temperature and pressure."

INVITATION TO COMMENT

On the Proposed Plan for the Operable Unit 1 Area 6 Naval Air Station Whidbey Island Oak Harbor, Washington

IMPORTANT DATES TO REMEMBER

Public Comment Period:

November 21, 2018 to December 21, 2018

Public Open House Meeting:

December 5, 2018
Anytime between 5:30 to 7:30 PM
NAS Whidbey Island Chief Petty Officers' Club
1080 W. Ault Field Road, Oak Harbor, Washington

See details inside.

Return Address:
Leslie Yuenger
Public Affairs Officer
Department of the Navy
Naval Facilities Engineering Command Northwest
1101 Tautog Circle, Suite 203
Silverdale, WA 98315-1101